TETRA TECH

Robert Kondreck
Project Manager

June 26, 2015

Mr. Paul Ruesch
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77 West Jackson Blvd. (SE-5J)
Chicago, Illinois 60604

Subject: **Letter Report – Former Wisconsin Die Cast Facility**
EPA Contract No. EP-S5-13-01
Technical Direction Document No. S05-0001-1407-016
Document Tracking No. 0253

Dear Mr. Ruesch:

Tetra Tech Inc. (Tetra Tech) is submitting the Letter Report for the Former Wisconsin Die Cast Facility. This Letter Report summarizes removal action activities conducted from September 22 through October 30, 2014, and intermittent activities in 2015. Any additional reporting on site activities will be presented as an addendum to this report. If you have any questions regarding this report, please call me at (312) 201-7479.

Sincerely,

Robert Kondreck
Project Manager

Enclosure

cc: Kevin Scott, Tetra Tech Program Manager
TDD File

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LETTER REPORT
FORMER WISCONSIN DIE CAST FACILITY
MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Prepared for

U.S. Environmental Protection Agency
Emergency Response Branch
Region 5
77 West Jackson Blvd. (SE-5J)
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Submitted by

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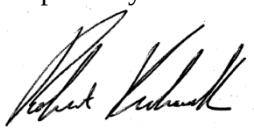

Robert Kondreck
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Approved by

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (USEPA) tasked Tetra Tech Inc. (Tetra Tech), under Superfund Technical Assessment and Response Team (START) Contract EP-S5-13-01, Technical Direction Document (TDD) No. S05-0001-1407-016, to perform the following activities:

- Develop and implement an Air Monitoring Plan and an Emergency Contingency Plan
- Conduct air monitoring, soil screening, and sample collection
- Perform general oversight that includes written and photographic documentation of site activities
- Track costs related to oversight activities
- Develop a letter report of activities completed

These activities were performed as part of a USEPA time-critical removal, as described in the 2014 Action Memorandum, for the Wisconsin Die Cast Facility, located at 201 West Oklahoma Avenue, Milwaukee County, Milwaukee, Wisconsin (USEPA 2014). The purpose of the time-critical removal action was to mitigate threats to public health, welfare, and the environment posed by the presence of uncontrolled hazardous substances at the site. In addition, the USEPA committed to conducting air monitoring during removal activities to ensure the safety of on-site workers and to ensure that off-site migration of fugitive emissions from the removal did not adversely affect neighboring commercial and industrial areas.

This letter report documents removal activities that took place at the Former Wisconsin Die Cast Facility from September 22 through October 30, 2014, and intermittently in 2015. Highlights of removal activities for each time period are listed below:

- **September 22 through October 3, 2014:**
  - Mobilize to site
  - Set up decontamination areas
  - Conduct real-time air monitoring
  - Clear and grub around building
  - Remove material in trim room, mezzanine above trim room, foundry, locker above foundry, die storage area, shipping, tool room, and machining room
  - Collect, consolidate, and dispose of hazardous waste material
  - Remove and replace roll-off boxes of metals, nonhazardous, and hazardous material
  - Conduct Occupational Safety and Health Administration (OSHA) compliance air monitoring
  - Complete a mercury survey

- **October 6 through October 17, 2014:**
  - Conduct real-time air monitoring
  - Remove material in offices, mezzanine above office, boiler room
  - Collect, consolidate, and dispose of hazardous waste material (including furnace brick)
  - Remove and replace roll-off boxes of metals, nonhazardous, and hazardous material
  - Remove polychlorinated biphenyls (PCB)-contaminated soil east of the building and collect confirmation sample
  - Complete a USEPA health and safety audit
  - Survey existing monitoring wells

- **October 20 through October 30, 2014:**
  - Conduct real-time air monitoring
  - Power-wash floors
  - Collect, consolidate, and dispose of hazardous waste
  - Remove furnace brick to roll-off box for off-site disposal
  - Remove material from storage box on west side of building
  - Remove and replace roll-off boxes of metals, nonhazardous, and hazardous material
  - Excavate and remove PCB-contaminated soil east of the building and collect confirmation sample
  - Backfill excavation with clean soil
  - Collect groundwater samples
  - Collect concrete core samples
  - Conduct sub-surface soil investigation and collect soil samples

- **April 2, 2015**
  - Conduct additional sub-surface soil investigation and collect soil samples
  - Install temporary monitoring wells in vacated boreholes

- **May 15, 2015:**
  - Backfill and seed excavation area

- **May 27, 2015**
  - Survey temporary monitoring wells
  - Assess temporary monitoring wells
  - Abandon temporary monitoring wells

This letter report discusses the site description and site background in Section 2.0, removal action activities in Section 3.0, a summary of completed removal action activities in Section 4.0, future activities in Section 5.0, and includes references in Section 6.0.

Site Figures 1 through 4 are provided in Appendix A; tables are provided in Appendix B; photographic documentation is provided as Appendix C; field notes recorded by START are provided in Appendix D; daily air monitoring sheets describing air monitoring for each day are provided as Appendix E; and data verification and laboratory reports are provided in Appendix F. USEPA Pollution/Situation Reports

(Polrep) were filed five times during the removal action. All five reports are provided as Appendix G. Boring logs and monitoring well abandonment forms are provided in Appendix H.

2.0 SITE BACKGROUND

This section describes the site location, the site description, and the project.

2.1 SITE LOCATION

The Former Wisconsin Die Cast Facility is a 2.8-acre lot with several interconnected buildings that encompass 61,000 square feet (ft^2) located at 201 West Oklahoma Avenue in Milwaukee, Wisconsin (see Figures 1 and 2 in Appendix A). The site is an industrial property located in a mixed residential, commercial, and industrial area. The site is bordered by Oklahoma Avenue and a privately owned school bus depot to the north, railroad tracks to the northeast, a home improvement store to the south, and industrial properties to the west and southwest.

2.2 SITE DESCRIPTION

The site served as a machine shop and a zinc and aluminum die cast foundry from 1945 until 2008. Before 1945, the site was undeveloped. Since initial construction of a 13,000 ft^2 building on the north side of the site in 1945, numerous additions of varying sizes have been constructed on the property. The site building is currently vacant.

The building is constructed of a steel frame, concrete block, brick, and masonry. There are two small basement areas in the north half of the building; restrooms and showers are located in a basement along the east wall of the tool room, and a furnace/boiler area is located in a basement on the east side of the southwest machining department.

Lead paint is peeling from the walls inside the building and asbestos-containing building materials are present. There were many containers located throughout the building. Most were labeled; however, unknown constituents were present. Drains and trenches in multiple rooms contained oil and other sludge. Miscellaneous debris was found throughout the building, including refractory brick, ash, and metallic debris.

3.0 REMOVAL ACTION ACTIVITIES

From September 22, 2014, to October 30, 2014, USEPA, START, along with the Emergency and Rapid Response Services (ERRS) contractor, conducted the removal action. USEPA On-Scene Coordinators (OSC) Kathy Halbur and Paul Ruesch were the primary site contacts. The START contractor was Tetra Tech and its local woman-owned small business subcontractor, Avantti Environmental Group (Avantti). The ERRS contractor was Environmental Quality Management (EQM).

Before the removal action, site-specific health and safety, air monitoring, emergency contingency, and site security plans were developed for the site per USEPA request. All of the workplans, along with other relevant site documentation, can be found on the project website at http://epaosc.org/WisconsinDieCast. Once approved, the plans were implemented throughout the removal. Removal activities were conducted under the direction of the on-site USEPA OSC. Daily site activities were recorded by USEPA and START personnel.

The removal action is discussed in Section 3.0 as five general activities, (1) debris removal, (2) air monitoring and sampling, (3) real time mercury monitoring, (4) subsurface assessment, and (5) community interactions. The purpose of the investigation is described in each section along with procedures used to complete the task. Supporting documents are described below.

3.1 DEBRIS REMOVAL ACTIVITIES

Debris was removed and the building was cleaned by the ERRS contractor from September 23 to October 30, 2014. The general chronological order of activities included site preparation (Section 3.1.1), hazardous waste consolidation (Section 3.1.2), building debris removal (Section 3.1.3), and final power-washing and cleaning (Section 3.1.4). Throughout the removal action, these activities may have occurred concurrently. Below is a general description of each activity. Figures are provided for each area of the removal action; Figure 1 depicts the perimeter of the site, Figure 2 shows common real-time air monitoring locations, and Figures 3 and 4 illustrates sample locations with analytical data collected during the removal action (see Appendix A).

3.1.1 Site Preparation

During site preparation, ERRS, USEPA, and START prepared the property to accommodate a site trailer, heavy equipment, roll-off boxes, disposal routes, and also designated hot zone and decontamination areas. The site trailer was staged southwest of the building on an asphalt lot. We Energies and a private contractor were hired to install electrical service to the site trailer. Towable enclosed trailers brought to

the site by USEPA and ERRs that were used to store equipment were staged immediately southeast of the main bay door of the building. Roll-off boxes were staged immediately south of the building.

Clearing and grubbing was conducted around the building to provide security and access to personnel around the building. Doors and windows broken as a result of vandalism were secured to prevent further intrusion. Lights were strung on the east side of the building along known vandal entry routes to discourage illegal entry to the property. Glass and other debris in the entry and around the building were consolidated and disposed of. Cut fencing along the perimeter of the site was mended using snow fence or plywood.

The area immediately north of the southeast garage door was cleared by ERRS to be used as the decontamination zone. A clean area and contaminant reduction area were created in this area using tables, empty drums, and caution tape. The rest of the interior building was considered a hot zone. ERRS personal protective equipment (PPE) and health and safety equipment was staged in the clean area. General signage and escape routes were posted in the clean area.

3.1.2 Hazardous Waste Consolidation

Before and while building waste was removed, ERRS collected and consolidated hazardous materials from the building. Hazardous materials were separated and staged to the northeast of the southeast garage door. Each type of waste was separated and categorized for off-site disposal throughout the removal activities. Hazardous materials included waste oil, fluorescent light bulbs, mercury-containing switches, foundry brick, asbestos-containing material, PCB-contaminated soils, and batteries. The quantity and type of hazardous materials, along with the final disposal destination, are provided in Table B-1 in Appendix B.

3.1.3 Building Debris Removal

From September 22 through October 30, 2014, an ERRS crew of three personnel consolidated, removed, and cleaned areas throughout all the rooms of the Former Wisconsin Die Cast Site. In general, hazardous and nonhazardous materials were removed starting from the southeast end of the building and moving northwest to the former offices. The following paragraphs describe general activities, progressing chronologically from initial removal activities to demobilization. However, some activities were performed concurrently.

ERRS first began cleaning out the trim room after a decontamination reduction and clean zone had been established near the southeast garage door entrance. ERRS staged all hazardous materials on the southeastern portion of the trim room. However, some hazardous waste such as asbestos-containing floor tiles and pipe wrap were directly loaded into roll-off boxes staged outside the building. Nonhazardous debris or recyclables were loaded directly into roll-off boxes staged south of the trim room garage doors. ERRS personnel swept the floor once the area was cleared of large debris and health and safety hazards such as loose light fixtures. ERRS then moved to the mezzanine located in the northeast corner of the trim room after USEPA had confirmed that the trim room was cleaned. Other ERRS personnel collected contaminated containers such as mercury switches and drums found throughout the building.

After waste was removed from the mezzanine, ERRS moved to the foundry room, die storage, and plant maintenance rooms to remove waste. Foundry brick located in the center of the building was not disturbed because of the potential for migration of asbestos and other contamination contained in the brick. Instead, the foundry brick was allowed to remain until the brick could be directly loaded into a hazardous waste roll-off box. Asbestos-containing pipe wrap was removed and directly put into a hazardous waste roll-off box. Subsurface trenches were cleaned of debris and sludge and disposed of in the appropriate waste stream. The floor was swept before ERRS moved north to the machining department and surrounding rooms.

General debris was removed and sorted from the shipping room, machining departments, wash room, tool room, and from adjacent rooms (both below and above grade). Aluminum shavings were removed from the machining department and disposed of in the hazardous materials stream. Asbestos-containing material was separated from the nonhazardous debris and disposed of in roll-off boxes. Subsurface trenches on the northern side of the building between the machining department and the tool room were cleaned of their contents and properly disposed of. The floor was swept before ERRS moved north to the offices.

Nonhazardous debris such as paper, broken glass, drop ceiling tiles, and broken furniture were removed from the offices and disposed of in the nonhazardous waste stream. After waste was removed from the office, the furnace brick from the foundry was broken into smaller pieces and disposed of as part of the hazardous materials stream. Water was sprayed over the furnace brick during consolidation and removal to mitigate the spread of dust during the process. After the furnace brick had been removed, the floors were power-washed starting from the northwestern end moving southeast. USEPA inspected the floors after each area was completed. Once the floors were confirmed clean, the debris removal was complete.

3.1.4 Securing the Building

Throughout the removal action, USEPA and its contractors reinforced and/or secured potential entry points from illegal intruders. Gaps in the fence on the eastern side of the building were mended using bailing wire, plywood, and snow fence. Windows and doors were secured using plywood affixed to the brick or metal framing. After removal actions were completed, USEPA contracted a building security company to reinforce and secure all possible entry points into the building.

3.1.5 Utility Disconnect

On September 22, 2014, the local power company (We Energies) was on site to confirm the natural gas was disconnected and to retrieve the gas meter. The natural gas was determined to be disconnected; however, the shut-off valve inside was removed, most likely by vandals. The gas meter had been removed, most likely by vandals, and therefore could not be retrieved.

On October 6, 2014, Milwaukee Water Works was on site and confirmed the water supply to the building was shut off.

3.1.6 PCB Excavation

PCB-containing soils were identified on the eastern side of the building during a site assessment conducted in 2014 (Weston 2014). PCB concentrations identified during the site assessment ranged from 3.5 milligrams per kilogram (mg/kg) to 23 mg/kg. Concentrations of the PCB Aroclor 1254 exceeded the USEPA removal management levels (RMLs) hazard quotient 3 (HQ 3) for residential and industrial soil. USEPA removed soil on the east side of the building to mitigate immediate threats to human health based on PCB concentrations above the EPA RML.

On October 8, 2014, ERRS began removing soil using a small excavator on the east side of the building where elevated levels of PCB were identified. Soil was removed using a shovel in areas that could not accommodate a small excavator. START collected confirmation samples after the first 6 inches of soil were removed. Removed soil was stockpiled on plastic near the southeast side of the building. Confirmation sampling areas were divided into five zones, as depicted on Figure 3 in Appendix A. A random five-point composite sample was collected in each of the five zones (SS-4-2014 through SS-8-2014) and submitted for Total PCB laboratory analysis.

Results of the October 8 sampling event indicated higher concentrations of PCBs than originally detected. Concentrations of the PCB Aroclor 1248 exceed Wisconsin Department of Natural Resources (WDNR)

residual contaminant levels (RCL) and USEPA RMLs, with results ranging from 100 to 160 mg/kg (see Table B-2A in Appendix B). START collected additional confirmation samples to further validate the October 8 results and to identify disposal criteria for the PCB soil stockpile. On October 14, 2014, START collected a surface soil sample from Zone 5 (SS-9-2014), a grab sample at 1 foot below ground surface (bgs) (SS-10-2014), and a stockpile sample (SS-11-2014). All samples were submitted for Total PCB laboratory analysis. The stockpile soil sample was collected and submitted for laboratory analysis of Total PCB, Toxicity Characteristic Leaching Procedure (TCLP) metals, TCLP mercury, TCLP semivolatile organic compounds (SVOCs), and TCLP volatile organic compounds (VOCs).

Results of the October 14 sampling event indicated concentrations of the PCB Aroclor 1248 ranging from 0.189 mg/kg (SS-10-2014) to 31.9 mg/kg in the stockpile (SS-11-2014) (see Table B-2A and Table B-2B in Appendix B). ERRS removed an additional 6 inches on October 22 based on the elevated PCB results above EPA RMLs from the October 8 and 14 sampling event. On October 23, 2014, START collected five-point composite surface soil samples from each of the five zones for Total PCB analysis. PCB results indicate Aroclor 1248 results ranging from 12 mg/kg (SS-16-2014) to 340 mg/kg (SS-13-2014) (see Table B-2A in Appendix B). Results were lower than the October 8 results, but still remained above EPA RMLs for residential. Enough soil was removed to place a clean cover over the remaining PCB contamination to prevent an immediate threat to human health and the environment. ERRS backfilled the excavated area with clean fill to prevent surface exposure to PCBs before demobilization.

3.1.7 Vegetative Cover

On May 15, 2015, ERRS was on site to add additional soil and seed to the disturbed excavated area on the east side of the building where PCB-contaminated soil was removed. Soil, seed, and straw matting were installed to prevent erosion of the clean backfill, thereby preventing future surficial exposure of residual PCB contamination.

3.2 AIR MONITORING AND SAMPLING

Real-time air monitoring was carried out by START throughout removal activities, as described in the Tetra Tech air monitoring plan (Tetra Tech 2014). Real-time air monitoring was completed on a daily basis from September 24 through October 29, 2014, as described in Section 3.2.1. Air samples were collected for laboratory analysis of lead and asbestos, as described in Section 3.2.2.

3.2.1 Real-Time Air Monitoring

Real-time air monitoring was conducted in hot zones (areas of elevated contamination) and outside of the building by START personnel from September 24 through October 29, 2014, weather permitting. Real-time air monitoring was described in detail in the Tetra Tech air monitoring plan (Tetra Tech 2014). The purpose of the real-time air monitoring was to measure particulate levels and chemical concentrations in the building and also fugitive particulate and chemical concentrations leaving the building. Real-time air monitoring was conducted each day removal action actives were occurring.

DataRAMs were deployed to measure particulate levels. DataRAMs were configured to analyze for fine particulates ($PM_{2.5}$, or particles less than 2.5 micrometer [µm]) that are most likely to cause adverse health effects. AreaRAE multi-gas monitors were deployed to analyze for chemical concentrations in air. Each AreaRAE was equipped with a photoionization detector (PID) capable of monitoring for total VOCs down to 0.1 part per million (ppm), percent oxygen (O_2), and percent lower explosive limit (LEL). Other sensors on the AreaRAE consist of one or two of the following: carbon monoxide (CO, in ppm), hydrogen sulfide (H_2S, in ppm), and ammonia (ppm). All real-time air monitoring equipment was calibrated or checked for alarms on a daily basis. Equipment maintenance was performed on site on an as-needed basis.

Real-time air monitoring for AreaRAEs utilized telemetry through RAE systems proprietary software. Telemetry for the DataRAMs used the USEPA VIPER system. Both systems recorded and stored readings electronically throughout the project.

Real-time air monitoring began with monitors positioned at the south garage door and in the hot zone (trim room) (see Figure 2 in Appendix A). As site activities evolved, air monitors were moved based on daily site activities. AreaRAEs were usually collocated with a DataRAM. A map showing common air monitoring locations for each floor is provided as Figure 2 in Appendix A.

Results of the air monitoring indicated that air quality levels did not exceeded action levels for a prolonged period (an 8-hour work day) during removal activities. A summary of real-time air monitoring results exceeding the action level, the duration of the elevated result, the activity being conducted at the time of the elevated result, and the general location are provided in Table 1.

TABLE 1
REAL-TIME AIR SAMPLING RESULTS EXCEEDING ACTION LEVELS

Date	Exceedance (Max conc.)	Action Level†	Duration* (minutes)	Activity	Location
9/25/14	CO (61 ppm)	35 ppm	2	Skid-Steer activities	South Garage Door
10/9/14	Particulates (3,856.7 µg/m^3)	2,500 µg/m^3	3	Skid-Steer activities	Near Furnace in Foundry Room
10/16/14	Particulates (688.4 µg/m^3)	500 µg/m^3	5	Skid-Steer activities	S Garage Door Entrance
10/21/14	CO (61 ppm)	35 ppm	1	Power-wash	Machining Dept.
10/24/14	Particulates (579.7 µg/m^3)	500 µg/m^3	1	Skid-Steer activities	S Garage Door Entrance
10/28/14	Particulates (1,216.6 µg/m^3)	500 µg/m^3	1	Moving monitor	Downwind of roll-off box
	VOC (2.7 ppm)	2.5 ppm	1	Vehicle exhaust during load-out	Downwind of PCB pile

Notes:
* Air monitoring results exceeding action levels in non-continuous minutes per day
† Action level for particulates based on activity zone (2,500 µg/m^3) or outside exposure (500 µg/m^3)
CO carbon monoxide
conc. concentration
ppm parts per million
µg/m^3 microgram per cubic meters

Daily air monitoring summary reports were created each day major site activities were conducted and are provided as Appendix E. Daily air monitoring forms summarize weather conditions during the sampling period, general site activities, and the maximum air quality concentrations documented for each day. Weather conditions were identified using Weather Underground's historical weather database for Milwaukee, Wisconsin, station MD0835 (Weather Underground 2014).

3.2.2 OSHA Hazard Characterization Air Monitoring

In accordance with OSHA regulations at 29 Code of Federal Regulations (CFR)1910.1001 (d)(2)(i) for asbestos, initial monitoring must be performed for employees who are, or may be, exposed to airborne concentrations at or above the time-weighted average (TWA) permissible exposure limit or excursion limit (OSHA 2014a). OSHA regulations at 29 CFR 1910.1025(d)(1)(i) for lead contain language similar to the above (OSHA 2014b). Employee exposure in both circumstances is characterized regardless of the respiratory protection worn. Therefore, employee exposure was evaluated even though respirators were worn to fulfill OSHA compliance. Asbestos and lead had been detected in the initial site assessment at concentration above their action levels (Weston 2014). In response to the potential hazard, and to comply

with the OSHA regulation, personal air monitoring was conducted on personnel with the highest potential exposure to lead and asbestos.

On October 1 and 2, 2014, personal air monitoring was conducted for lead and asbestos by attaching a GilAir5 air sampling pump onto the ERRS contractors with the highest potential for encountering hazardous substances. The GilAir5 air sampling pump was calibrated using a BIOS Drycal Air Flow Calibrator to approximately 2 liters per minute prior to each sampling event. At the end of each sampling period, the flow rate was checked again for any change in flow. While the hazard characterization sample was being collected, a trip blank was opened, placed in a plastic bag, and closed during the same sampling period as the hazard characterization sample. The flow rate, volume collected, and collection of trip blanks were in accordance with National Institute for Occupational Safety and Health (NIOSH) sampling Method 7400 for asbestos and NIOSH sampling Method 7303 for lead (NIOSH 1994, 2003). Samples were submitted for laboratory analysis by the ERRS contractor to TestAmerica Laboratories in Phoenix, Arizona. A summary of hazard characterization sampling is provided in Tables 2 and 3 below. Appendix F contains data verification and laboratory reports for analysis of samples for lead and asbestos.

TABLE 2
HAZARD CHARACTERIZATION AIR SAMPLING

Samples	Sample Quantity	Sample Dates	Sample Method	Activity
Asbestos (& Trip Blank), Lead (& Trip Blank)	1 (each)	October 1, 2014	NIOSH 7400/ NIOSH 7303	Removed material from Machining Department and Tool Room; Bag potential ACM
Asbestos (& Trip Blank), Lead (& Trip Blank)	1 (each)	October 2, 2014	NIOSH 7400/ NIOSH 7303	Removed material from Machining Department and Foundry Room; Bag potential ACM

Notes:
ACM Asbestos Containing Material
NIOSH National Institute for Occupational Safety and Health

TABLE 3
HAZARD CHARACTERIZATION AIR SAMPLING RESULTS

Samples	Sample Date	Sample Results	Action Level (OSHA TWA)
Metals	Oct 1	<0.310 µg/m^3	41 µg/m^3
Metals	Oct 2	0.880 µg/m^3	40 µg/m^3
Asbestos	Oct 1	0.019 fibers per CC	0.1 fibers per CC
Asbestos	Oct 2	0.04 fibers per CC	0.1 fibers per CC

Notes:
CC cubic centimeters
µg/m^3 micrograms per cubic meters
OSHA Occupational Safety and Health Administration
TWA time weighted average

3.3 REAL-TIME MERCURY MONITORING

On September 23, 2014, START conducted real-time mercury monitoring at the request of USEPA. Mercury monitoring was requested by USEPA based on elevated mercury concentrations in samples collected during the site assessment and supplemental site assessment (Weston 2014). USEPA acquired the mercury monitoring equipment (Lumex RA915 Plus) from the USEPA warehouse in Willowbrook, Illinois. START screened the site trailer, the area outside the site trailer, the clean room, the contaminant reduction zone, and each area in the building.

The highest mercury concentration (1 nanograms per cubic meter [ng/m^3]) occurred near the south garage door after that area was cleaned but before it was power-washed. Most readings occurred within the drift of the instrument, causing the mercury readings to be negative ng/m^3 throughout the building. The action level for mercury for commercial and occupational settings varies from NIOSH's Recommended Exposure Limit (REL) of 50,000 ng/m^3 as a 10-hour TWA for commercial and occupational settings (medical offices, schools, and commercial retail settings) of 3,000 ng/m^3 to 4,000 ng/m^3 (ATSDR 2012). Based on the results of the September 23, 2014, mercury did not appear to exist in ambient air throughout the building.

3.4 SUBSURFACE ASSESSMENT

USEPA and START performed a subsurface assessment of the building materials, groundwater, and soil as part of the removal action. The purpose of the subsurface assessment was to obtain chemical concentrations of groundwater and soil in and around the building to assess threats to human health and the environment. Results of soil samples collected during the subsurface assessment are provided in Figure 3 in Appendix A. Groundwater results collected during the subsurface assessment are provided in

Figure 4 in Appendix A. Chemical concentration and groundwater data for the subsurface assessment are provided in Tables 2A through 5 in Appendix B. Laboratory analytical reports and associated data verification reports are presented in Appendix F.

3.4.1 October 2014 — Concrete Core Sampling

On October 28, 2014, ERRS and START collected two concrete core samples (CC-01-1014 and CC-02-1014) from a utility trench located on the north side of the site. The sample was collected using a concrete corer to obtain a 2-inch-long and a 1½–inch-diameter concrete core. Purple and black staining was observed within the first quarter inch of each concrete sample. Concrete core samples were sent to an off-site laboratory for PCB analysis. PCB concentrations in the concrete ranged from 10 mg/kg to 25 mg/kg. Title 40 CFR defines contamination as greater than 50 mg/kg. The PCB results are presented in Table B-2B in Appendix B.

3.4.2 October 2014 — Groundwater Sampling of Temporary Monitoring Wells

Temporary monitoring wells were installed inside direct push borings by a subcontractor to GZA during a February 2009 Phase II Environmental Site Assessment (GZA 2012). On October 15 and 16, 2014, START completed a temporary monitoring well (TMW) inspection of 14 existing TMWs (see Table B-3 in Appendix B). A total of 10 TMWs were in adequate condition to be gauged for depth to water. Two TMWs (GP-04 and GP-12) contained an oily product, and therefore the depth to water could not be measured. The remaining two TMWs (GP-02 and GP-06) were damaged to the extent that they could not be gauged. Depth to water ranged from 2.48 feet bgs in GP-03 to 11.71 feet bgs in GP-07. A complete list of depths to water is provided in Table B-3.

On October 24, 2014, START attempted to purge, collect groundwater quality measurements, and sample the 10 TMWs. However, only six TMWs produced enough water to be sampled. A peristaltic pump was used to purge existing water from the TMWs. Temporary monitoring wells were purged until water quality readings stabilized or until the well was purged dry. The last water quality reading for each TMW was recorded on Table B-3 in Appendix B. Following purging and groundwater recharge, each well was sampled using low-flow sampling techniques. Groundwater samples collected were submitted to an off-site laboratory for analysis of VOCs, Resource Conservation and Recovery Act (RCRA) metals, and Total PCBs. At one location (GP-12), an oily product was collected for off-site laboratory analysis of Total PCBs.

Metals (arsenic, cadmium, chromium, and lead), PCBs (Aroclor 1242 and 1248), and VOCs (1,1,2-trichloroethane, cis-1,2-dichloroethene, tetrachloroethene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride) in groundwater samples all were at concentrations above the higher of Wisconsin Administrative Code (WAC) Department of Natural Resources (NR) Chapter 140 or USEPA removal management levels (HQ 3) action levels. A complete listing of TMW groundwater results is tabulated in Table B-4, Appendix B.

The PCB oil sample collected from TMW GP-12 contained 111,000 mg/kg of PCB Aroclor 1242. The tabulated result is presented in Table B-4 in Appendix B.

On October 30, 2014, USEPA and START abandoned all TMWs by removing the top 2 feet of casing from each of the 14 TMWs and then filing the hole with bentonite. The surface was then completed with a cover (asphalt or concrete) to match the existing surface surrounding the former TMWs. Abandonment forms are provided in Appendix H.

3.4.3 October 2014 — Subsurface Soil Sampling

On October 30, 2014, a USEPA-owned Geoprobe with operator arrived on site to advance six borings (SB-01 through SB-06). Borings were advanced in areas surrounding the building. Each boring was advanced using direct-push technology to refusal or groundwater. Soil from the boring was logged for geology and screened using a PID equipped with at 10.6 ionization potential (eV) lamp by START. PID readings and a description of the soil are provided in the field logbook (see Appendix D) and boring logs (Appendix H).

Two soil samples were collected per boring. One soil sample was collected from the two foot interval immediately beneath the surface. The second soil sample was collected at the interval with the highest PID reading or immediately above the water table. All soil samples were submitted for analysis of metals, PCBs, and VOCs.

Arsenic was the only metal to exceed state action levels (WDNR Chapter NR 720 for industrial sites). However, arsenic was not above state background threshold levels. PCBs ranged from non-detect to 3,000 micrograms per kilogram (µg/kg) (SB-02, 4-to 6-feet bgs). Specifically, soils from SB-02 (4 to 6 feet bgs) and SB-5 (2- to 3-foot and 3- to 5-foot bgs) exceeded Wisconsin DNR NR 720 for PCBs in industrial and non-industrial sites. VOCs, tetrachloroethene, and trichloroethene, exceeded Wisconsin

DNR NR 720 for non-industrial sites or the USEPA RML for industrial action levels at SB-02 (6 to 7 feet bgs) and SB-03 (2 to 4-and 6 to 7 feet bgs). Analytical results are tabulated in Table B-5 in Appendix B.

After each boring had been completed, the vacated hole was filled with bentonite, hydrated, and sealed at the surface with concrete. Borehole abandonment forms are provided in Appendix H.

3.4.4 April 2015 — Subsurface Soil Sampling

On April 2, 2015, a USEPA-owned Geoprobe with operator arrived on site to advance five borings (SB-07 and SB-09 through SB-11). Borings were advanced inside the building in areas surrounding known contamination or in areas where contamination was thought to exist. Each boring was advanced through concrete to 15 feet bgs. One boring (SB-08) could not be advanced because of subsurface concrete obstructions. Soil from each boring was logged, screened, and sampled as described in Section 3.4.3. All soil samples were submitted for off-site laboratory analysis of PCBs, VOCs, and SVOCs. PID readings and a description of the soil are provided in the field logbook (see Appendix D) and boring logs (Appendix H). A 1-inch polyvinyl chloride (PVC) pipe with a 10-foot screen was placed in the vacated borehole for use as a temporary monitoring well to check for product accumulation at a later date after each borehole had been completed.

PCBs (Aroclor 1221, 1242, 1248, and 1260), VOCs (tetrachloroethene and trichloroethene), and SVOCs (benzo(a)pyrene) in soil samples all were at concentrations above either the WAC NR Chapter 720 (industrial) or USEPA removal management levels (HQ 3) action levels. A complete listing of soil sample results is tabulated in Table B-4, Appendix B.

On May 27, 2015, USEPA and START returned to the site to check each temporary monitoring well for accumulation of product. None of the temporary monitoring wells contained product. Each well was abandoned by removing the PCV piping and sealing as described in Section 3.4.3. Abandonment forms are provided in Appendix H.

3.5 COMMUNITY INTERACTIONS

Various entities from the City of Milwaukee (such as the Redevelopment Authority of the City of Milwaukee [RACM] and the local fire company) were on site periodically throughout removal activities. The City of Milwaukee observed site activities and coordinated with USEPA to identify the potential reuse of the property. The City of Milwaukee was also consulted on transition procedures after the removal was complete in addition to the subsurface investigation.

4.0 SUMMARY OF REMOVAL ACTIVITIES

The following is a summary of removal action activities completed from September 22 through October 30, 2014, April, 2, 2015, and May 15 and 27, 2015:

- All hazardous and nonhazardous containers and debris (that could be safely accessed) were removed from the site and disposed of at the appropriate facility.
- Floors, walls, and ceilings were scraped to remove potential hazardous material and disposed of in the appropriate waste stream.
- Scrap metal, batteries, and mercury containing devices were recycled.
- PCB-contaminated soil was removed from the northeastern side of the building and disposed of off site.
- Air monitoring indicated no sustained air quality concentration above action levels during the removal action.
- Utilities were confirmed disconnected from the building.
- Subsurface investigations were conducted to determine potential building material contamination along with subsequent soil and groundwater contamination.
- Community partners and response agencies were notified and consulted throughout the removal activities.

5.0 FUTURE ACTIVITIES

USEPA mitigated threats to public health, welfare, and the environment posed by the presence of uncontrolled hazardous substances at the site as a result of the removal action. However, the following site activities may be conducted to monitor long-term environmental and public health threats:

- During the supplemental site assessment, City of Milwaukee contractor GZA identified VOCs, PCBs, and metals in groundwater and soil at concentrations above state and federal action levels in areas surrounding and underneath the building (GZA 2012). USEPA through site investigation and this removal action confirmed those findings. Analytical results from an oil sample from a temporary monitoring well indicated non-dissolved PCBs on top of groundwater. In addition, soils northeast of the building contain PCBs at concentrations above state and federal action levels at depth. The immediate threat (PCB contaminated surface soils) was mitigated via excavation and off-site disposal and capping with clean fill. However, contamination remains above EPA RMLs below the building slab and at depth around the building. Further remediation will be needed.

- Past experience with building security would indicate further vandalism is probable. To preserve the integrity of the building and prevent structural collapse, the building should be monitored for break-ins.

6.0 REFERENCES

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APPENDIX A
SITE FIGURES

APPENDIX B
TABLES

APPENDIX C
PHOTOGRAPHIC DOCUMENTATION

APPENDIX D

START FIELD NOTES

APPENDIX E

DAILY AIR MONITORING SUMMARY

APPENDIX F
DATA VERIFICATION AND LABORATORY REPORTS

APPENDIX G

USEPA POL/REPS

APPENDIX H

START BORING LOGS AND ABANDONMENT FORMS